Philosophical Transactions

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An Accompt of ſome Books.

I. *Lectiones* 18, Cantabrigiæ *in Scholis publicis habitæ, in quibus OPTICORUM Phænomenων Genuinæ rationes inveſtigantur & exponuntur, ab* Iſaaco Barrow, *Coll. S.* Trin. *Socio, Matheſ. Profeſſ.* Lucaſiano, & Soc. Regiæ *Sodali.* Londini, 1669. *in* 4°. *Impenſis* Joh. Dunſmore *ad Inſigne Roſæ & Coronæ, in Cæmeterio D.* Pauli.

A Brief ſummary of theſe *Optick Lectures* the Excellent Author doth himſelf deliver in an Epiſtle to a Friend, who deſired ſuch an one from him; when he ſaith, that in them he endeavoureth to promote that part of *Opticks*, which he undertakes to treat upon, firſt by explaining and eſtabliſhing its Principles; then by deriving from them ſome uſeful Conſectaries, ſerving to the explication of the *Phænomena*: in the mean while attempting to correct ſome common errours, and to ſupply ſome principal defects therein.

Towards theſe purpoſes, he firſt examineth the received *Hypotheſes* of this Science, ſhewing, how they ſhould be underſtood, and how far admitted; aſſigning alſo ſome *Phyſical* cauſes of them, (in the performance whereof he declares himſelf not to confide much, but only requires the *Hypotheſes* themſelves, as not diſagreeable to Reaſon, and very congruous to Experience, to be admitted.)

Having firſt ſetled the *Hypotheſes*, he firſt draweth from them ſome general Corollaries, partly before acknowledged by others, and partly obſerved by himſelf; all confirmed by his own demonſtrations.

Then proceeding to more Special matters, he proſecutes diſtinctly *Catoptricks* and *Dioptricks*, both *Plain* and *Spherical*. And ſlightly paſſing over *Plain Catoptricks* (as eaſy and commonly treated on, truly enough,) he more largely inſiſts upon *Spherical Catoptricks*, propounding ſuch Theorems, whereby the Interſections, and the Limits of Reflected rays are declared, and together the Appearing places, or images of points radiating both from a great (and, as it were, immenſe) diſtance, and from a diſtance ſenſibly near, are determined, both in reſpect of an eye placed *in* the Axis of the radiation, and in reſpect to one placed *without* that Axis any where; the which particulars he had not obſerved in any Book extant to be truly and diligently handled.

Then he from the foundation raiſeth a *Theory* concerning both *Plain* and *Spherical Dioptricks*, aſſuming for a ground that rule concerning the Meaſure of Refractions, which Mr. *Des-Cartes* firſt diſcovered, and which now moſt of the beſt writers do admit, and which he judgeth agreeable to truth (for that all deductions from it very well ſuit to experience) which yet he knows not that any writers have applyed to this purpoſe, ſo as to have raiſed any competent ſuperſtructure thereon. And here orderly (firſt in reſpect to *Plain*, then to *Spherical Surfaces*,) conſidering points radiating from a diſtance ſo great that their rays may be ſuppoſed to fall parallel to one another upon the refracting ſurface, he propounds ſome *Theorems*, from which the chief Symptoms of refracted rays do reſult; their Interjections and Limits are eaſily diſcernable; the appearing places or images of ſuch points are defined, both in regard to an eye ſituated *in* the Axis of the radiation, and in regard to one placed *elſewhere*. Then he proſecutes in like manner the ſame things in reſpect to *Points*, radiating from a diſtance ſenſibly finite or near.

And that the *Uſe* of theſe things may be more ready, and ſerviceable to practiſe, he ſubjoyneth diſtinctly and particularly the determinations of the places in the Axis of the Images of points however radiating through each kind of *lentes*.

Having diſpatched theſe matters, he toucheth generally concerning the making a judgment about the Appearances of Magnitudes (as to their ſcituation and figure,) which follow thoſe ſorts of reflection and refraction: Afterward more ſpecially and copiouſly, he ſhews what kind of Images plain objects do yeild from ſuch reflections, and how they may be delineated.

Among theſe things there are interſperſed ſome conſiderations about divers incident matters, as about the nature of Light, and the cauſes of different Colours about the Rainbow, or colours appearing in pellucid globes; about ſome appearances in the vitreous *Priſme*; concerning the *linea refractaria*, concerning the reſolution of problems by Appropriate lines; concerning the properties of the *Conical* ſections in the reflection of lucid rays, &c.

II. *Lectiones* 13. *GEOMETRICÆ, in quibus (præſertim) Generalia LINEARUM CURVARUM Symptomata declarantur ab eodem* Iſaaco Barrow, &c. *Impenſis ejuſdem Bibliopolæ, in* 4°.

Concerning the *Geometrical Lectures*, arguing great depth in ~~the~~ Mathematical Learning,

In the *firſt* of them, in order to what follows afterward concerning the *Generation of Magnitudes*, the Deſerving Author treateth about the Nature of *Time*, as it may be conſidered in Mathematical ſuppoſitions about ſuch Generations.

In the *ſecond* are declared the Mathematical *Hypotheſes* about ſimple Motions (progreſſive and Circular,) which ſerve to the Production of Magnitudes, together with ſome general remarks, about the natures, dimenſions, and properties (conſequent on ſuch productions) of Magnitudes. There is alſo a touch about the Method of *Indiviſibles*, explicating, how in ſome caſes it is to be underſtood and applyed.

The *third* treats about the Generation of Magnitudes by compoſition and concourſe of motions.

In the *fourth* and *fifth*, from one generation propounded of Curve lines, (ſuppoſing them produced by two motions, one uniform, the other accelerated) divers Theorems are inferr'd, implying ſo many general properties of Curve lines.

The next *five* Lectures do contain many Theorems, and Problems about readily determining the *Tangents* of *Curve* Lines, immediatly by them, without other computation; particularly, there are divers ſingle Theorems, whereby the Tangents of all Curves commonly known or conſidered in Geometry (the *Conical Sections*, *Conchoids*, *Ciſſoids*, *Spirals*, *Quadratrices*, &c.) are determined in ways ſo general, as to comprehend alſo the like determination of Tangents in regard to innumerable other Curves, generated in a common manner with them. Of thoſe five Lectures the two firſt are *Lemmatical*, or preparatory to the Demonſtration of the propoſitions delivered in the other three; wherein yet there be ſome *Theorems* not unpleaſant. In the *tenth* is delivered a general Analytical method of determining Tangents, extending to all ſorts of Curve lines, both *Geometrical* and *Mechanical* (as Monſieur *Des-Cartes* diſtinguiſheth.)

The *eleventh* Lecture containeth ſeveral general Theorems, about the Dimenſion of Magnitudes, or the compariſon of them with one another.

To that there is ſubjoyned an *Appendix* concerning the dimenſion of Circular, and Hyperbolical ſegments, with divers Theorems and Rules ſerving to that purpoſe.

The *twelfth* Lecture containeth alſo ſeveral Theorems concerning the Dimenſion of Magnitudes, but chiefly reſpecting the dimenſion of Surfaces produced by the Rotation of Curve lines, and the dimenſion of Curve lines themſelves.

To this Lecture there are alſo three Additaments; the *firſt* whereof containeth ſome Theorems about the dimenſions of Spaces conſtituted by the Tangents and Secants of a Circle. The *ſecond* ſhews, how the foregoing Theorems may be demonſtrated by the Apagogick way, or by reduction *ad abſurdum*; together with a way of finding the dimenſion of the ſurfaces of Conical bodies. In the *third* divers Problems and Theorems are added, of kin to thoſe of the *eleventh* and *twelfth* Lecture.

The *thirteenth* Lecture propounds an Explication of the nature, and conſtitution of Equations, together with the variety of Roots, their Limits, &c. by conſtruction, and conſideration of certain curve lines appropriate to each Equation: with ſome notes reſpecting each particularly, and all in general.

So much of theſe two Excellent Treatiſes: Since the Publication of which, their worthy Author hath been pleaſed to communicate to a Friend of his ſome Corollaries, belonging to the ſecond *Problem* of his third *Appendix* to the twelfth *Lecture*; which becauſe we conceive they will be very acceptable to the Mathematical Reader, we ſhall here, by the Author's good leave, ſubjoyn them in the ſame Language, he hath written them in, *viz.*

Cæterum, ἐπιμέτρου *vice, animadverto, potuiſſe ſecundo Appendiculæ tertiæ Lection's XII. Problemati Corollaria quædam adponi non injucunda; qualium adſcribam unum & alterum.*

Probl. 1. *Detur linea quæpiam AMB (cujus axis AD, baſis DB,) curva ANE deſignetur talis, ut ductâ libere rectâ* V. Tab. 1. n. X.
MNG ad BD parallela, quæ ipſam ANE ſecet in N; ſit curva AN æqualis ipſi GM.

Curva ANE talis ſit, ut ſi MT curvam AMB, & NS curvam ANE tongant, ſit $SG . GN :: TG . \sqrt{GMq - TGq}$; *ipſa ANE propoſito faciet ſatis.*

Probl. 2. *Iſdem quoad cætera ſuppoſitis, & conſtitutis; curva*

ANE jam talis eſſe debeat, ut curva AN ſemper æquetur interceptæ rectæ NM.

Curva ANE jam talis ſit, ut ſit SG. GN :: 2TG × GM. GMq — Gq; erit ANE curva, quæ deſideratur. V. fig. eandem.

Probl. 3. *Datur curva quæpiam DXX, cujus axis DA; reperiatur*

V. Tab. I. n. XI. *curva AMB proprietate talis, ut ſi libere ducatur recta GXM ad ipſam AD perpendicularis, ponaturque, SMT curvam AM tangere; ſit MS æqualis ipſi GX.*

Liquet rationem TG ad TM (hoc eſt, rationem GD ad MS, vel GX,) dari; adeoque rationem TG ad GM quoque dari.

Inſervit hoc ſuperficiebus deſignandis, quarum in promptu ſit dimenſio. Etenim (ductâ ME ad AD parallelâ) ſuperficies Solidi, ex Plani BME circa axem DB rotatu progeniti, adæquat $\frac{\text{Periph.}}{\text{Rad.}}$ *GDX; ut habetur in II^a Lectionis XII.*

In Lect. XI. Appendice, numero 33, de Cycloide *profertur Theorema quoddam; id quod ex hujuſmodi generaliori Theoremate deduci potuiſſet.*

Sit AMB curva quælibet, cujus axis AD, baſis DB; ſit item curva

V. Tab. I. n. XII. *ANE talis, ut ſi arbitrariè ducatur PMN ad DBE parallela, poſitóque, rectam TN curvam ANE tangere, ſit TN parallela ſubtenſæ AM; completo rectangulo ADEG, erit ſpatium trilineum AEG æquale ſegmento ADB.*

Huic ſuppar theorema tale eſt: Iiſdem poſitis; ſi tam ſegmentum ADB, quàm ſpatium AEG circa axem convertantur; erit productum è ſegmento ADB ſolidum producti ex AEG duplum. V. fig. eand.

E Tangentium *porrò contemplatione ſuborta eſt methodus, per quam expeditiſſime plurima circa maximas quantitates Theoremata deducuntur; quæ certè, ſi tempeſtivè ſe objeciſſent, digna cenſuiſſem quæ* Lectionibus *infererentur: ex iis indigitabo nonnulla.*

Sit curva quæpiam ALB, cujus axis AD, baſis DB, & huic parallelæ

V. Tab. I. n. XIII. *LG, λγ; item LT curvam tangat:*

Theor. I. *Sit* m *numerus quicunque* poteſtates *exponens; ſi ponatur* $DG^{\underline{m-1}} \times TG = GL^{\underline{m}}$; *erit* $DG^{\underline{m}} + GL^{\underline{m}}$ *maximum, ſeu majus quàm* $D\gamma^{\underline{m}} + \gamma\lambda^{\underline{m}}$.

Th. 2. *Itidem ſumpto numero* m, *ſi ponatur* $BL^{\underline{m-1}} \times TL = GL^{\underline{m}}$; *erit* $GL^{\underline{m}} + BL^{\underline{m}}$ *maximum, ſeu majus quàm* $\gamma\lambda^{\underline{m}} + B\lambda^{\underline{m}}$.

Th. 3. *Sint numeri quilibet* m, n; *ſi ponatur* $m \times TG = n \times DG$, *erit* $DG^{\underline{m}} \times GL^{\underline{n}}$ *maximum, ſeu majus quàm* $D\gamma^{\underline{m}} \times \gamma\lambda^{\underline{n}}$.

Th. 4. *Quòd ſi ponatur* $m \times TL = n \times \text{arc}\, BL$, *erit* $GL^{\underline{n}} \times BL^{\underline{m}}$ *maximum, ſeu majus quàm* $\gamma\lambda^{\underline{n}} \times B\lambda^{\underline{m}}$.

Th. 5. *Si fuerit* $TG \times GL = DGLB$, *erit* $DGLB \times GL$ *maximum, ſeu majus quàm* $D\gamma\lambda B \times \gamma\lambda$.

Th. 6. *Sin* $TG \times GL = 2\,DGLB$, *erit* $GL \times \sqrt{DGLB}$ *maximum, ſeu majus quàm* $\gamma\lambda \times \sqrt{D\gamma\lambda B}$.

Haud difficili negotio cùm hæc demonſtrantur, tum ejuſmodi complura deprehenduntur.

III. *A Continuation of the MEMOIRES of M.* Bernier *concerning the Empire of the G.* Mogol. *Engliſh't out of French.* London, *Printed for* Moſes Pitt *in Little Brittain,* 1671. *in* 8°.

THe *firſt* Volume of theſe *Memoires*, lately alſo printed in *Engliſh* for the ſame Bookſeller, containing almoſt nothing but *political* affairs, was left un-mention'd in theſe Books; but this *ſecond* taking notice of many particulars, relating to our deſign, we thought good to give it ſome place here; and to let the Reader know, that, beſides an accurate Deſcription of the two famous Cities of Indoſtan, *Dehli* and *Agra*, and many things diſcovering the *Genius* of the *Mogols* and *Indians*, as alſo thoſe, which belong to their *militia*, &c. here is an account given,

Firſt, of the Extravagant opinions of the Gentiles of *Indoſtan*; of their odd belief concerning *Eclipſes*; of the Books of Sciences received amongſt them; of their Doctrine of the Tranſmigration of Souls, and of the Creation, Preſervation and Deſtruction of the World; as alſo a Relation of the different Sects of Philoſophers amongſt them; of their Method of *Phyſick*, very different from ours, and how ſucceſsful; of their ignorance in, and averſion from *Anatomy*; of their pleaſant Tenets in *Aſtronomy*, *Geography*, and *Chronology*; of their opinion concerning *Plants* and *Animals*, importing that the Seeds of both of theſe kinds are not form'd anew, but were contrived in the Firſt production of the World; as alſo, that they are actually the very entire Plant or Animal.

Secondly, here is to be found a good deſcription of the kingdom of *Kachemire*, the reputed *Paradiſe* of the Eaſt-Indies; its antient State; its preſent condition and excellencies for Soyl, Vegetables, Waters, Cattel, Wild Dear; the wit and Induſtry of the Inhabitants in making fine ſtuffs, good Verniſh, &c. the condition of its Mountains, one ſide of them being intolerably hot, and yielding *Indian* Plants, the other very tolerable, and affording none but *European* Plants; ſome remarkables about the Generation and Corruption of Trees there; ſtrange *Caſcata's* of water; a rare fountain, flowing, and ſtopping regularly thrice a day, at a certain time of the year, and at other times flowing irregularly; and a great Lake, having Ice in Summer, &c. The Scituation of the kingdoms of *Tibet*, and the Commodities they offord. A conſiderable account of Voyages made by Caravans from *Kachemire* through the mountains of the great *Tibet* into *Tartary* and *Cataja*; and another, of the kingdom of *Kacheguer*, with directions how to travel thither from *Kachemire*, as alſo, how to paſs from *Kacheguer* to *Cataja*. To all which is added an Anſwer to ſome Queſtions touching the *Mounſons* and *Rains* in *India*; the wonderful regularity of the Current of the Sea, and of the Winds there; the fertility of *Bengale*; and the Cauſes of the Inundation of the *Nile* and ſome other Rivers. The whole is concluded with a Letter concerning the Doctrine of *Atoms* and the nature of the *Mind* of Man.

Hiſtoria & Meteorologia INCENDII ÆTNÆI, Anni 1669. Joh. Alph. Borelli. *Regio Julio* 1670. *in* 4°.

THough we have ſeen ſeveral Relations communicated to us of this late fire Fire of Mount *Ætna*, one of which hath been inſerted in *Numb.* 51. of thoſe Tracts; yet will it be eaſily allow'd by thoſe, that ſhall have read and conſidered this Diſcourſe, compoſed and publiſhed by the famous Philoſopher and Mathematician *J. Alph. Borelli*, that all others, that have hitherto written any thing about it, muſt needs give the preeminee to him in reſpect of method, fulneſs, and philoſophical reflexions; to the performance of which he averreth to have been induced by his Eminence the Cardinal *de Medicis* and the Engliſh *R. Society*.

The Author then having given a ſhort *Topography* of this Mountain, delivers firſt a ſuccinct Relation both of the old and later Eruptions, as alſo of this laſt Fire of *Ætna*, and withall aſſigneth the *perpendicular* Height of the ſame, ſhewing it not to exceed three *Italian* miles, and here taking notice of *Kepler's* aſſigning two ſuch miles for the height of the Atmoſphere, and thence concluding the top of *Ætna* to be conſiderably raiſed above that region of the common Air; confirming the ſame by a known Experience, whereby thoſe that are on the ſaid top at a clear break of day, may plainly ſee the whole Iſland of *Sicily*, and all the Towns thereof, as 'twere elevated and hanging in the Air, near the Eye, juſt as, upon the account of Refraction, ſtones lying at the bottom of a pond appear nigh the ſurface of the water.

After this, in the Hiſtory it ſelf of this Eruption he deſcribeth particularly;

Firſt, the beginning of it, which happen'd on the 8th of *March* 1669, accompanied with Earth-quakes, and a Rent of the ground of 12 miles long, and 5 or 6 foot broad, as alſo with a terrible noiſe, roaring and cracking, vaſt globes of ſmoak firſt riſing into the Air, and abundance of fiery melted ſtones being ejected ſoon after, which firſt ran like a flood of fire, and overwhelmed in a ſhort ſpace of time 13 towns, beſides a part of the City of *Catania* it ſelf, and afterwards were by the Air hardned into vaſt heaps of black and pumice-like ſtones, there call'd *Sciarra*; waſting and ſpoiling abundance of Vines, Olives, and other plants.

The caſting out of the Aſhes and Sand continued for three whole months without ceaſing, and filled all the neighbouring country, and cover'd all the Trees thereof for 15 miles about; the ſmalleſt duſt flying even over Sea into *Calabria* by a South-wind, and into the moſt Southern-parts of *Sicily* by a North-wind.

But then on the 25th of *March*, by a new Earth-quake the Top or Turret of Mount *Ætna* it ſelf fell in, whereby was made an Opening or Cauldron of three miles in compaſs, and vaſt quantities of new matter caſt out, and amongſt it, abundance of fiery ſand, falling down with a yet burning heat at 8 miles diſtance from the Cauldron; whereupon the ſame by particular view and obſervation was found widen'd to the circumference of 6 miles. Mean while all conſidering men there were amaz'd at the force throwing out to ſo great a height ſuch huge ſtones, whereof one was meaſur'd to be 60 palmes (or about 40 foot) long, which was faln down a mile from the Cauldron with that violence, that it was ſtruck 30 palmes into the ground.

When this fiery Torrent aſſaulted *Catania* it ſelf, and had already by its impetuoſity forced from its place a whole hillock, planted with vines, belonging to the *Jeſuits*, and carryed them floating,together with the ſoil bearing them, till it ſo ſwelled as to cover and ſink them all; there appear'd ſome gallant perſons, who by their ingenuity and extraordinrry diligence,with fit Inſtruments, and raiſing vaſt ſtrong walls, diverted the courſe of the fiery ſtream from that City,but chiefly by boaring through the ſtony heaps, and thereby making paſſage for that current another way,and turning part of it into the Sea,wherein it made a promontory of a mile's compaſs before the Town.

It ceaſed by the 11th of *July* of the ſame year it began: And in *May* of 1670. our Author himſelf could handle without hurt the inner parts of the Cauldron and the former Torrent, and ſaw not ſo much as any ſmoak remaining in the higheſt part of that opening: Where yet he obſerveth,that notwithwanding this entire ceaſing in the ſaid places, there were yet found in ſeveral parts of this newly ejected *Sciarra* hot and ſtrong-ſmelling fumes ariſing on high, eſpecially near the walls of the South-ſide of *Catania*, where wells had been digged for watering their Garden fields.

This being the Breviat of the Hiſtory of this Eruption, which the Author deſcribeth with many other conſiderable circumſtances; we proceed to acquaint the Reader, that after this Deſcription he expatiateth into divers important ſpeculations and remarks thereupon.

And *firſt* he comments upon the Form,Conſiſtence,Bulk,and Motion of the ejected matter; taking particular notice of the great abundance of *Sal Armoniac*,that was found in all the holes and vents of the ground, and in the clefts of ſtones; and obſerving, that in three months time the fiery flood ran out 12 miles in length,and,taking the *medium*, one mile and two thirds of a mile in breadth, and ſtopp'd at laſt by the ceaſing of new matter,and the condenſation of the liquid matter by the cooling Air.

Next, he compareth together the meaſure of the freſhly ejected matter with that of the Mountain, and finds it to equal near a fourteen thouſand part of the whole Mount.

Thirdly, he evinceth, that Mount Ætna hath no ſuch vaſt deep cavities, as ſome imagine, within its bowels near the ſurface of the Sea,but that there it is filled up with ſolid and ſtony matter,the huge weight of the ſuperincumbent hill rather compreſſing it,than ſuffering any conſiderable hollowneſſes to continue therein.

Fourthly, having exploded the imperfect *Meteorology*, deliver'd by the Antients of this Mountain, he diſcourſeth of Subterraneous Heat, and deduceth the Cauſe of it from ſome concrete oleaginous and fatty ſubſtances, as ſulphur, bitumen, and oyl, eaſily reducible into flame; examining withall, both what is the origin of ſuch ſulphureous and bituminous matter, and how that comes to take flame: Where he digreſſeth to ſhew, how Gunpowder is ſet on fire, after he hath deſcribed the compoſition, and conſidered the ſtupendious force of the ſame by its percuſſion.

Fifthly, he declareth, how and why the Fire in this Mountain was kindled; which he conceiveth to have been moſt probably done by ſuch a way, as Quick-lime is heated by the affuſion of Water; whereupon he ſheweth, how Earth-quakes, Flames, and Conflagrations may have enſued.

Sixthly, he examins the origin and production of the fluid matter that was vitrified upon its being thrown out of this Mountain; and is of opinion (which he aſſerts by reaſon and experiment) that it was not any ignited and melted Sulphur or Brimſtone, or both together, nor any metallin bodies that were converted into thoſe vaſt ſtony and black-maſſes, which they call *Sciarra's*, but rather Earth and Sand, together with ſome Alcaliſat Salts, burn'd by the fervent heat of the *Ætnean* furnaces, and ſo turn'd into a vitreous fluor, and afterwards, upon their being cool'd by the Air, into hard ſubſtances: Explaining withall, how the Aſperity and Opacity of theſe ſtones are conſiſtent with this ſentiment.

Seventhly, he diſcourſeth plauſibly of the Extent, Form and Scite of the *Ætnean* Furnace, and having, upon the examination of divers circumſtances, found it but ſmall and narrow, he labours to ſhew, how, this notwithſtanding, ſo vaſt a quantity of matter, as amounts, according to his eſtimate, to about 100, 000, 000 cubic paces, could be therein melted and thence caſt up.

Eightly, he deſcribeth the burning down and falling in of the higheſt top of *Ætna*.

Ninthly, he inquireth into the Generation of thoſe *Sands* abovementioned, and withall giveth an account, why in the New opening of *Ætna* there were heard ſuch terrible and perpetual Thundering noiſes, as alſo, by what cauſe and force thoſe Sands were thrown out; ſhewing withall, that they were really *Sands*, not *Aſhes*, and ſolving Objections alledged againſt it.

Tenthly he concludeth, that ſince, by his calculation, the upper part of Mount *Ætna* hath been juſt ſo much depreſſed, as the maſs of ſand and ſtones ejected amounts to, this maſs was furniſh't by the Mountain it ſelf, and from the Earth and Sands thereof produced and vitrified: where he taketh pains to make it appear, how all that prodigious quantity of matter, thrown out both now and in former ages, and ſeeming far to exceed the bulk of this whole Mountain, could be furniſh't by *Ætna* it ſelf, and yet the ſame not be quite levelled with the ground: The like of which he conſiders of Mount *Veſuvius*.

Eleventhly, he taketh particular notice, that, whereas the Fires were ſoon extinguiſh't in the place of the very Pit of the Sulphur and Bitumen, yet they laſted long in other places, that were wateriſh and deſtitute of combuſtible fatneſs; endeavouring to render a reaſon of this *phænomenon*.

Twelfthly, he inſerts an Obſervation of great plenty of *Sal Armoniac*, caſt out in this *Incendium*, which, he ſaith, was ſeen adhering both to the corners and aſperities of the *Sciarra*, and to the ſides of the rents made in thoſe huge ſtones, which the ejected matter was at length hardned into. And of this Salt he affirms, that there had been ſublimed, (for he makes it *factitious*) ſo great ſtore, that many thouſands of pounds might be gather'd; adding, that even a whole year after the extinction of the Fire in the Mouth's of *Ætna*, there were found remaining divers vents about *Catania*, exhaling ſtore of ſmoak, which had the like Sal Armoniac ſticking to the ſides and edges of the Stones.

Laſtly, he rejecteth the opinion of thoſe, that will maintain the Ætnean Fires to have been perpetual and never extinguiſh'd, aſſerting the frequent ceſſation of them, and withall aſſigning the cauſe of that ceſſation, as well as that of their renovation. Concerning which, and many other conſiderable remarks and reflections, too many to be here recited, we refer the Reader to the Book it ſelf.